

**REMARKS**

Applicants thank the Examiner for the thorough consideration given the present application. Claims 7-11, 13-16, 18-20, and 22-29 are pending in this application. Claim 17 is canceled without prejudice to or disclaimer of the subject matter contained therein. Claims 1-6, 12 and 21 were previously canceled. Claims 7, 10, 11, 14, 16, 18, 19, 24, and 26 are amended, and claim 29 is added. Claims 18, 19, and 29 are independent.

Reconsideration of this application, as amended, the arguments below, is respectfully requested.

**Claim for Priority**

The Examiner is requested to acknowledge Applicants' claim for foreign priority under 35 U.S.C. §119 and receipt of the certified copy of the priority document filed with the application on September 8, 2000.

**Rejections under 35 U.S.C. §103(a)**

Claims 7-11, 14, 17, 19-23, 26, and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nakaya et al. (U.S. Patent No. 5,684,884) in view Szilagyi et al (U.S. Patent No. 6,396,197); and

Claims 13, 15-16, 18, 24-25, and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nakaya et al. (U.S. Patent No. 5,684,884) in view of Davis et al (U. S. Patent 6,345,102) and Szilagyi et al (U.S. Patent No. 6,396,197).

These rejections are respectfully traversed.

While not conceding the appropriateness of the Examiner's amendment, independent claim 17 is canceled, each of independent claims 18 and 19 is amended, and independent claim 29 is added as shown below to recite a combination of elements not disclosed or suggested by the references cited by the Examiner.

**Amendments to Independent Claim 18**

In particular, independent claim 18 is amended herein to recite a combination of elements directed to a piezoelectric speaker, including

a laminating film having a back surface area larger than the back surface of the piezoelectric film for covering and protecting the entire back surface of said piezoelectric film, the laminating film having a peripheral portion extending beyond the back surface of the piezoelectric film and which is attached to an outer peripheral portion of said back surface of said frame, and thereby covering side edges of the piezoelectric film, and

a fastener secured to said laminating film at a position overlapping edges of the piezoelectric film but not overlapping the opening for detachably fastening said piezoelectric speaker to an inside of a helmet.

Full support for the novel features set forth in claim 18 can be found in the specification, for example on page 5 lines 3-7. See also FIGS. 4, 5, and 6 which clearly show a laminating film having a back surface area larger than the back surface of the piezoelectric film for covering and protecting the entire back surface of said piezoelectric

film, the laminating film having a peripheral portion extending beyond the back surface of the piezoelectric film and which is attached to an outer peripheral portion of said back surface of said frame, and thereby covering side edges of the piezoelectric film.

FIG. 4 also shows a fastener secured to said laminating film at a position overlapping edges of the piezoelectric film but not overlapping the opening for detachably fastening said piezoelectric speaker to an inside of a helmet. As a result of this novel configuration, the edges of the piezoelectric film are pinched between the frame and the inner surface of the shell of the helmet, thereby reliably maintaining the shape and the posture of the piezoelectric film.

In contrast to the presently claimed invention, as can be seen in FIG. 3., Nakaya et al. merely disclose a piezoelectric device 14, 16 fitted within inner dimensions of an opening of frame 10, and merely disclose protective film 9 which fails to extend beyond outer edges of the piezoelectric device 14, 16. Moreover, it appears to the Applicants that Nakaya et al. FIGS. 5A-F merely show different perspective of the same elements shown in Nakaya et al. FIG. 3.

Further, none of Nakaya et al., Davis et al., and Szilagyi et al. teaches or suggests a fastener secured a position overlapping edges of the piezoelectric film.

Thus, the Applicants respectfully submit that each of Davis et al. and Szilagyi et al. fails to make up for the deficiencies of Nakaya et al.

In view of the above amendments and remarks, the Applicants respectfully submit the Examiner has failed to make a *prima facie* case of obviousness in the rejection of independent claim 18.

Thus, it is respectfully submitted that the combination of elements set forth in independent claim 18 as amended herein are not disclosed or made obvious by the prior art of record, including Nakaya et al., Davis et al., and Szilagyi et al.

In view of the foregoing, it is respectfully submitted that independent claim 18 is in condition for allowance.

Applicants respectfully request withdrawal of the rejection of claim 18 as being unpatentable over the combination of Nakaya et al. and Szilagyi et al.

**Amendments to Claim 19**

Independent claim 19 is amended herein to recite a combination of elements directed to a speaker system, including

an ear side frame and a shell side frame piece which clamp together over back and front surfaces of the peripheral portion of the piezoelectric film, thereby holding the piezoelectric film speaker between the frame pieces,

the ear side frame piece and the shell side frame piece each having a center opening which are substantially equal in size, the center openings extending through the frame pieces and exposing a central portion of the piezoelectric film speaker to a person's ear.

Full support for the novel features claimed in claim 19 can be found in the specification, for example on page 6, lines 6-11, and page 8, lines 4-8. See also FIGS. 7 and 8, which clearly show an ear side frame and a shell side frame piece which clamp together over back and front surfaces of the peripheral portion of the piezoelectric film, thereby holding the piezoelectric film speaker between the frame pieces, the ear side frame piece and the shell side frame piece each having a center opening which are substantially equal in size, the center openings extending through the frame pieces and exposing a central portion of the piezoelectric film speaker to a person's ear. See also page 6, line 22 to page 7, line 2 and FIG. 9 which show the ear side frame piece and the shell side frame piece are curved and the piezoelectric film speaker is supported by and curved by the frame pieces.

A careful review of the references cited by the Examiner (Nakaya et al. and Szilagyi et al.) indicates that neither of these documents discloses or makes obvious an ear side frame and a shell side frame piece which clamp together over back and front surfaces of the peripheral portion of the piezoelectric film, thereby holding the piezoelectric film speaker between the frame pieces, the ear side frame piece and the shell side frame piece each having a center opening which are substantially equal in size, the center openings extending through the frame pieces and exposing a central portion of the piezoelectric film speaker to a person's ear, the ear side frame piece and the shell side frame piece are curved and the piezoelectric film speaker is supported by and curved by the frame pieces, as set forth in independent claim 19 of the present invention.

For example, as can be seen in Nakaya et al. FIGS. 3 and 5A-F, this document merely discloses a single non-curved frame 10. Moreover, Szilagyi et al. fails to make up for the deficiencies of Nakaya et al.

In view of the foregoing, it is respectfully submitted that independent claim 19 is in condition for allowance.

Applicants respectfully request withdrawal of the rejection of claim 19 as being unpatentable over the combination of Nakaya et al. and Szilagyi et al.

**Added Independent Claim 29**

Independent claim 29 is added herein to recite a combination of elements directed to a speaker system, including

a curved frame having an opening therein, the opening extending between a back surface and a front surface of the frame;

a piezoelectric film having a back surface area larger than the opening in said frame, the piezoelectric film being located on said back surface of said frame and covering said opening, the piezoelectric film being supported by the curved frame and having a radius of curvature substantially equal to a radius of curvature of the frame;

a laminating film having a back surface area larger than the back surface of the piezoelectric film for completely covering and protecting the back surface of said piezoelectric film, the laminating film having a peripheral portion extending beyond the back

surface of the piezoelectric film and which is attached to an outer peripheral portion of said back surface of said frame, and thereby covering side edges of the piezoelectric film; and

a fastener secured to said laminating film at a position overlapping edges of the piezoelectric film but not overlapping the opening for detachably fastening said piezoelectric speaker to an inside of a helmet.

In other words, the piezoelectric film is curved by the curved frame. Therefore, the shape and posture of the piezoelectric film is maintained reliably and firmly.

Support for a curved frame having an opening therein, the opening extending between a back surface and a front surface of the frame; and a piezoelectric film having a back surface area larger than the opening in said frame, the piezoelectric film being located on said back surface of said frame and covering said opening, the piezoelectric film being supported by the curved frame and having a radius of curvature substantially equal to a radius of curvature of the frame, as set forth in claim 29, can be seen in FIG. 6.

By contrast, as can be seen in Nakaya et al. FIG. 3, this document fails to suggest a curved frame. As can be seen in Fig. 3, and as disclosed in col. 6 lines 16-19, the piezoelectric sheet 4 in its bent shape is maintained by the matching support layer 8 and the protective layer 9. The piezoelectric sheet 4 is not curved by the frame. Therefore, the shape and posture of the piezoelectric sheet 4 is not maintained reliably and firmly.

In summary, independent claims 18, 19, and 29 are in condition for allowance.

Dependent claims 7-11, 24, and 26, which previously depended from claim 18, now depend from added independent claim 29. Dependent claims 14 and 16 are amended merely to place them in better form.

Since the dependent claims depend directly or indirectly from allowable independent claims 18, 19, and 29 they are also allowable due to their dependence on allowable independent claims, or due to the additional features provided by these claims.

Thus, reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) are respectfully requested.

### **CONCLUSION**

All the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants, therefore, respectfully request that the Examiner reconsider the outstanding objection and rejection and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

However, if there are any outstanding issues, the Examiner is invited to telephone Carl T. Thomsen, Reg. No. 50,786, at 703-205-8000 in an effort to expedite prosecution.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for



Application No. 09/657,803

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Group Art Unit 2643

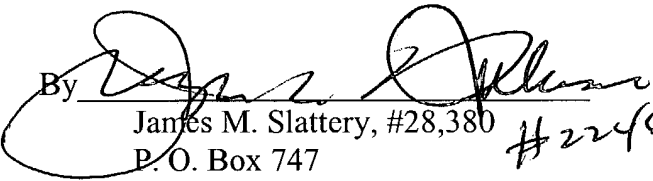
Page 16 of 16

any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

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